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United States General Accounting Office  
Washington, D.C. 20548

FOR RELEASE ON DELIVERY  
Expected at 9:00 a.m. EST  
Thursday, April 1, 1976



LM099393

Statement of  
Phillip S. Hughes  
Assistant Comptroller General of the United States  
before the  
Committee on Science and Technology  
United States House of Representatives  
on  
[Financing for Commercial-sized Demonstrations  
of Energy Technologies]

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Mr. Chairman and Members of the Committee, we welcome the opportunity to be here today to be of whatever help we can in your consideration of the difficult problems of advancing energy technologies. In this brief statement, I would like to focus my comments on three broad subjects. First, I would like to discuss certain general concerns regarding the wide variety of bills now before the Congress that would provide--on a piecemeal basis--various types of financial support for commercial-sized demonstrations of energy technologies.

Second, I will summarize a recent GAO report on the Administration's Proposed Synthetic Fuels Commercialization Program, which we prepared at the request of the Chairman of your Subcommittee on Energy Research, Development, and Demonstration (Fossil Fuels).

Lastly, I will describe GAO's plans for a study which will build on our earlier work through analysis of alternative financing methods for synthetic fuels and the tradeoffs involved in choosing among such alternatives and in allocating limited Federal dollars to synthetic fuels projects as opposed to other competing energy projects.

#### GENERAL CONCERNS

Bills now before a number of congressional committees address three basic phases of financial support for commercial-sized demonstrations of energy technologies:

- the financing of the construction and operation of the actual plants, either on a demonstration or a commercial scale;

--the subsidizing of high cost new energy products to the extent necessary to make them competitive with available cheaper energy products; and

--the initial costs to state and local governments for the planning for and construction of public facilities-- hospitals, schools, roads, etc.--necessitated by major energy development, particularly in remote areas.

Rather than a piecemeal approach, we believe that legislation regarding financial support for synthetic fuels and other energy development should be coordinated in a comprehensive framework which includes all the likely costs associated with development and detail on the mix, number, and size of plants, and types of financial support needed for each. Specifically, adequate financing for synthetic fuels commercialization requires further information, analysis, and evaluation of many factors, particularly the arrangements for subsidies or price supports which may be necessary to make synthetic fuels competitive. Subsidies or price supports in turn raise the question of Government energy pricing policy. For example, oil and gas prices are being held down by regulations while it appears that it would be necessary to subsidize higher cost synthetic fuels.

These are only some of the questions about synthetic fuels development and its proper priority for receiving Federal dollars which we hope to address in the next few months.

RECENT GAO REPORT ON THE ADMINISTRATION'S PROPOSED  
SYNTHETIC FUELS COMMERCIALIZATION PROGRAM

Let me now summarize our report of March 19, 1976, to the Chairman of your Subcommittee on Energy Research, Development, and Demonstration (Fossil Fuels). In that report we commented on the Administration's proposed synthetic fuels commercialization program and on section 103 of H.R. 3474, which is similar to H.R. 12112.

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Background of the proposal

To reduce the Nation's dependence on foreign energy, the President, in his 1975 State-of-the-Union Message, called for Government financial and other incentives to stimulate industry investment in developing and demonstrating the commercial viability of synthetic fuels. The President set a goal to produce the equivalent in synthetic fuels of 1 million barrels of oil a day by 1985.

An Interagency Task Force was established in February 1975 under the sponsorship of the Energy Resources Council, with the responsibility for determining and developing the Government incentives and involvement needed for commercialization of synthetic fuels technologies.

In a November 1975 report, the Task Force concluded that significant quantities of synthetic fuels are not likely to be produced in the United States by 1985 without Federal incentives and changes in regulatory policy, primarily because of (1) the anticipated cost of synthetic fuels and (2) the risk associated with large synthetic fuel plant investment in light of the uncertainty of future world oil prices.

The Task Force concluded also that a 1 million barrel a day program was not justified at that time and that a decision on such a program should be deferred pending analysis of the first phase of a two phase program, which it recommended. The first phase would be aimed at developing information on, and demonstrating the technical, economic, and environmental feasibility of commercial-size plants using available technologies, and would lead to the production of the equivalent of 350,000 barrels of oil a day.

The second phase program would include financing for some mix of additional commercial-sized demonstration plants and subsidizing enough plants using proven processes to reach synthetic fuels production equivalent to 1 million barrels of oil a day.

To encourage industry to participate in phase one, the Task Force considered the advantages and disadvantages of various forms of Federal assistance for encouraging the construction and operation of a limited number of commercial-scale synthetic fuel plants, including loans, loan guarantees, purchase agreements, price guarantees, construction grants, Government ownership, corporation access to coal on public lands, and tax changes, such as investment tax credits, construction expensing, and accelerated depreciation. ~~It~~ <sup>ing</sup> recommended loan guarantees, construction grants, and price supports.

There are important policy and judgmental questions involved in this recommendation. A different emphasis on certain considerations used by the Task Force--such as impact

on the budget, degree to which an alternative preserves and enhances competition, ability to achieve program goals, and extent of Federal involvement in management of operations--could conceivably lead to a different choice of alternative forms of assistance.

However, time constraints prevented us from fully comparing the proposals to provide Federal loan guarantees to build commercial-size synthetic fuels demonstration facilities with possible alternative forms of assistance. Nevertheless, our report did bring out certain matters which we believe your committee should consider.

Matters for consideration  
by the Committee on Science  
and Technology

ERDA believes that, in addition to loan guarantees, other forms of Federal assistance, such as price supports and construction grants, will be essential to carry out phase one of the synthetic fuels commercialization program. In implementing the program, ERDA plans, by July 1976, to complete a study to determine the optimum plant technology and plant size and mix. In addition, as part of the phase one program, ERDA plans to finance the construction and start-up costs of non-synthetic fuel commercial demonstration facilities--such as solar and bio-conversion facilities. About \$1 billion of the \$6 billion phase one program recommended by the Task Force was for contingencies for construction delays, extraordinary inflation, different plant mixes, increased incentives, etc. ERDA plans to either use a portion of this contingency or request additional authorities from the Congress to commercialize nonsynthetic fuel technologies. We believe

the Committee should ask ERDA to delineate more clearly the scope and magnitude of Federal assistance needed to carry out phase one of the program, including the type and number of plants it will need.

Section 103 of H.R. 3474 would have authorized the establishment of a revolving fund for carrying out the program authorized in the bill. We believe that, to maintain congressional control, legislation to authorize program financing by means other than through the appropriation process should include provisions for annual review by the Congress, coupled with such limitations and allowances for flexibility as deemed appropriate.

As part of its ongoing work, ERDA will also be performing research and development to bring down the costs and enhance the environmental suitability of these synthetic fuel plants. Because of the possibility of integrating these refinements with phase one projects, close scrutiny should be given to the number and size of plants proposed by ERDA for phase one. Also, close scrutiny should be given to any information obtained under this phase before authorizing the second phase synthetic fuels program.

In anticipation of legislation authorizing phase one, ERDA plans to augment the Task Force report by completing various studies in addition to that required to determine optimum plant technology and plant size and mix. These studies are also planned to be completed by July 1976 and are generally aimed at

--undertaking strategy and policy analyses necessary for  
program implementation;

- initiating long lead-time activities related to program implementation (such as environmental impact statement finalization and program regulations); and
- informing the public, Congress, States, and other groups about the proposed program and respond to requests as needed.

Legislation currently before the Congress would establish an Energy Independence Authority, a Government corporation with authority to provide financial assistance to encourage domestic energy development and energy conservation, and to hasten the commercial operation of new energy technologies through loans and loan guarantees of up to \$100 billion. The question of Government assistance for encouraging the commercialization of synthetic and nonsynthetic fuel technologies might better be resolved within the broader scope of the Authority proposal, or a similar one, which covers all forms of energy supply, rather than a select few.

We have expressed our concern in commenting on the Authority proposal over the lack of balance between energy supply and energy conserving technologies, but we believe it offers a better option for dealing on a broad basis with the question of the proper Government support role for commercialization of energy technologies, than to deal with individual technologies and issues piecemeal.

#### FURTHER GAO WORK

Finally, GAO does have plans for further work which will attempt to deal with alternative methods of financial support



for synthetic fuels and the tradeoffs involved in choosing among such alternatives and in allocating limited Federal dollars to synthetic fuel projects, as opposed to other competing energy projects. To the extent possible, we will address some of the pros and cons of implementing financial support programs on a piecemeal basis as opposed to a comprehensive umbrella approach, such as the Energy Independence Authority proposal. For purposes of illustration, let me describe some of the tradeoffs which we believe could be considered.

For example, questions could be raised regarding the desirability of subsidizing high cost synthetic fuel output when the price of domestic oil is regulated at an average price, currently \$7.66 a barrel. In a typical oil reservoir, as we understand it, only something on the order of one-third of the total oil in the ground is recovered before abandonment because there is a lack of economic incentive for further secondary and tertiary recovery. To indicate the potential here, a recent study prepared for the Federal Energy Administration stated that an increase in crude oil prices could increase recoverable reserves of crude oil by billions of barrels by extending well life and by enabling increased use of secondary and tertiary recovery operations. This could indicate additional potential for oil and gas recovery if secondary and tertiary operations and technological research were provided Government support at the high price levels discussed for synthetic fuel production. Further, the subsidizing of secondary and tertiary oil recovery could lessen the need to finance the initial impacts of synthetic

fuel plants at State and local levels, as well as the need to guarantee the very large construction costs of synthetic fuel plants.

Another question which might be looked at is the question of incremental versus average pricing of synthetics. Pricing synthetics at existing oil or gas prices could make the synthetics more cost competitive and reduce or possibly even eliminate the need for Government price supports. On the other hand, incremental pricing requires payment of the true product cost and, therefore, has a different impact on final consumption patterns. Incremental pricing would also require synthetic fuels to compete with other alternatives to imported oil, such as energy conservation and solar energy, where rolled-in pricing is impossible or possible only on a more limited scale.

Consideration could also be given to optional uses of the fuel produced by synthetic fuel plants. Recently, the Congress passed the Energy Policy and Conservation Act of 1975, which among other things, authorized a strategic petroleum reserve. This reserve is to store up to 1 billion barrels of oil and must contain not less than 150 million barrels by the end of 1978. The Administration is now considering where this oil is going to come from, how much it will cost, and whether, in fact, the oil can be obtained at all. The possibility could be considered of using the output from a synthetic fuels program--particularly if costs and Government involvement are extensive--to fill all, or part, of this reserve.

As you can see, Mr. Chairman, there are matters requiring closer examination regarding the scope and magnitude of Federal financial support for synthetic fuel and other forms of energy development. We hope that our further study will provide some useful insights on these matters. We plan to complete our study this summer in the same general timeframe in which ERDA plans to complete its follow-up studies on synthetic fuels.

In summary, we are suggesting that information which should be available from ERDA and GAO this summer should be helpful to the Congress as it proceeds towards final legislative action on H.R. 12112 or any of the other bills currently in Congress dealing with the Federal financing support for construction costs, price supports, and initial costs to State and local governments. We recognize, however, the urgency of the need for action and the consequent necessity for this Committee and the Congress to weigh the need for early action against the usefulness of more complete information.

Mr. Chairman, this concludes my prepared statement. We will be glad to respond to questions.